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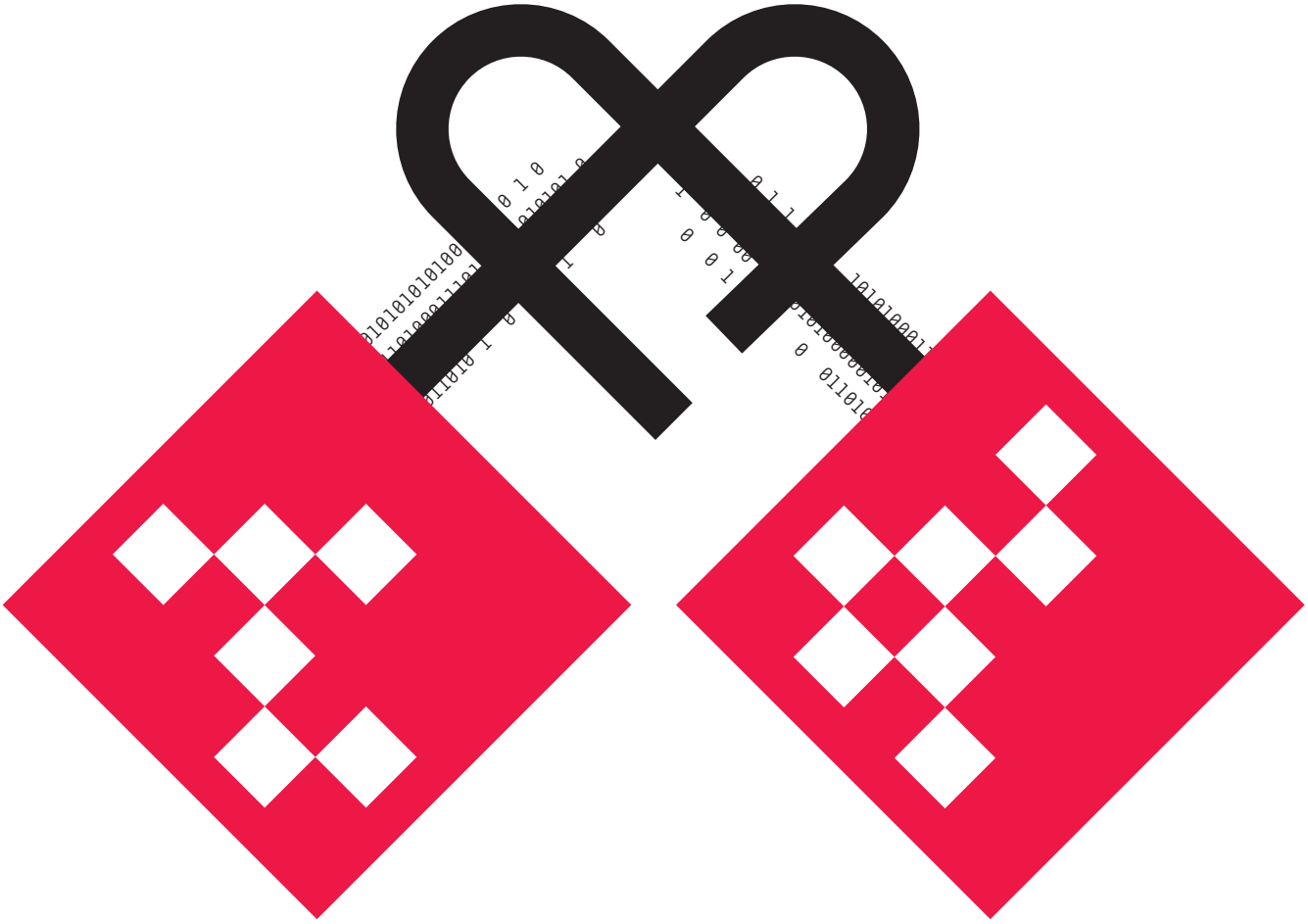

Blockchain for business: redefining trust

EXPERT ARTICLE

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Blockchain has been around for a long time but, as the hype dies down, this security-based technology continues to challenge the business status quo across many organisations and industries, with Gartner predicting full scalability by 2023. So, what does it look like behind the scenes of the technology everyone is talking about?

Establishing roots from the cryptographic data structure Merkle tree, blockchain has grown to become one of the most talked about technologies in recent years. With business and political tech leaders intensively engaged with the opportunities and challenges of digitalisation, organisations acknowledge the potential for disruption, value generation and adoption of blockchain applications in the near future. In fact, the technology has already significantly impacted the design and implementation of digital business processes, e-government solutions and trust-based social interactions – with some labelling the movement "the Internet of Contracts".

So, what does it actually offer? Distributed consensus building, digital transfer of values, automation and irreversibility of transactions are all features that are poised to challenge the existing business models of many organisations and institutions. It also offers the possibility of new business models that would not otherwise be possible from an economic and regulatory perspective.

Switzerland leading blockchain innovation

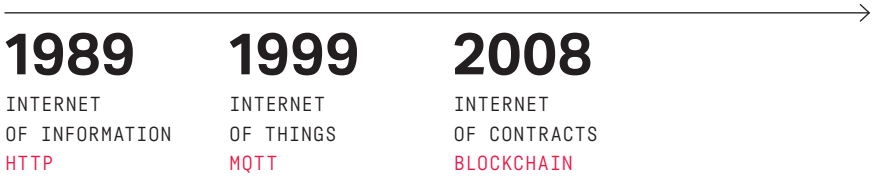
As blockchain hype recedes, a variety of blockchain initiatives and consortia, worldwide, aim to create international standards to resolve the challenges of misplaced trust and lack of transparency. Leading blockchain hubs, in Singapore, London, New York and Zug, provide innovative ecosystems for blockchain businesses while attracting the most promising ideas.

With the provision of a friendly tax and regulatory environment, Switzerland has become one of the most attractive locations for blockchain businesses. This year, it has been reported that there are more than 800 active blockchain organisations in Switzerland. Collectively, they attract funding, employ best-in-class field experts and, with 20 per cent world blockchain market coverage, they stamp their place on the world map.

Is blockchain right for you?

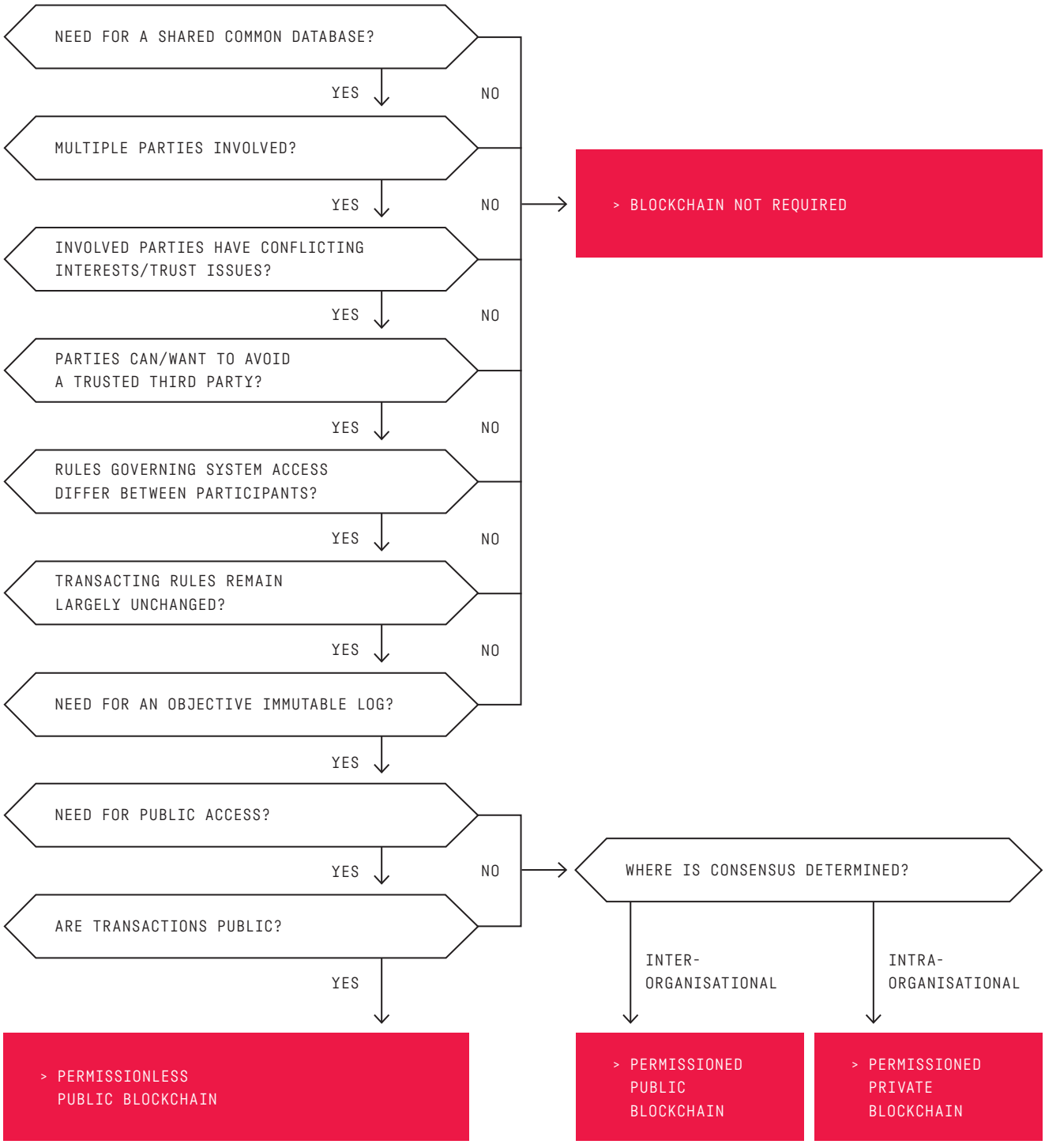
Why would we need a blockchain when we have distributed

EVOLUTION OF INTERNET USAGE.
WIDE ADOPTION LAGS INVENTION BY ABOUT A DECADE.



databases? This is a legitimate question anyone should consider when making a decision about the right IT portfolio for their organisation. In contrast to a traditional distributed database, implemented and controlled by a single organisation, a blockchain "database" has distributed control, meaning no single organisation will have the power to change the history of transactions or roll it back. Instead, a consensus between organisations in the network must be reached to create or amend transactions.

While there is no "one and only" blockchain system configuration, there are several common criteria to consider when deciding whether blockchain technology is the right solution for your business:



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"Blockchain technology provides a new approach to protect health data and, at the same time, grant access to the data in a granular and transparent way."

_ANDRÉ NAEF,
BUSINESS INNOVATION MANAGER

The business benefits to look out for:

> Lower costs through elimination of third parties and acceleration of processes
> Data access and traceability in business ecosystems
> Transparent access control for business or personal data, with clear data ownership

Finance

The allure of creating new money is a strong one and the first widely-adopted blockchain applications, starting with Bitcoin, were precisely about that. Due to the lack of underlying value, this new money on the blockchain is highly volatile, however, and mostly suitable for speculation. More recent developments support the so-called tokenisation of established underlying values, such as currencies, stocks and metals. Through tokenisation, values become transactionable on the blockchains. Furthermore, regulatory frameworks such as Know Your Customer (KYC) and Anti-Money Laundering (AML) are being adopted for blockchains, which enable so-called atomic token swaps to be executed directly. Therefore, it may become possible to swap an amount of tokenised Swiss Francs against another tokenised asset with

"Switzerland has become one of the most attractive locations for blockchain businesses."

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significantly less need for trusted third parties, at greater transparency, higher speed of transactions, and lower cost, compared to the current financial infrastructure. This disrupts existing business models but the opportunities clearly outweigh the risks.

Retail

Wouldn't it be nice to open a bag of vegetables, scan a code with a smartphone app and trace back the origin of those goods through their various processing centres and, ultimately, to the farm where they were grown? Blockchain technology enables this use case to become a reality at very low operational cost. The gain in transparency for the ecosystem, as a whole, is enormous and all organisations concerned profit from the data – for example, excesses in sustainable-production quotas are

easily detected. Overall, the world is moving towards increased transparency – this use case, for example, is well aligned with several of the Sustainable Development Goals (SDGs) put forward by the United Nations.

E-Health
In an environment of continuously increasing costs, digitalisation in the health sector has a huge potential for quality and efficiency improvements. The inaccessibility of health data negatively affects health outcomes and hinders research. However, health data is clearly among the most personal and sensitive data in our society and the prospect of a breach of personal health data is unnerving. Blockchain technology provides a fresh approach to protect health data and, at the same time, grant access to the data in a granular and transparent way. In this setup, data is maintained in decentralised, strongly protected environments. Data subjects remain in full control of the access to their health data and, to this end, a blockchain is used for transparent access control. The blockchain acts as a ledger of granted access rights, over time. Physicians with a legitimate need to access personal health data can do so in real time. Additionally, data subjects are empowered to provide their data to researchers in an anonymised way and, subsequently, are directly and personally compensated for doing so. The application of blockchain technology can create particular value in environments characterised by lack of trust between participants – for example, countries beginning to build their health systems, or innovative forms of collaboration and data exchange not yet regulated in detail.

E-Government
For the public sector, the use of blockchain technology offers the potential to strengthen transparency, efficiency and trustworthiness in administrative processes. These use cases include land registries, e-voting, digital identities and various certifications. Looking at land registries, in particular, blockchain technology can bring benefits by authenticating a record of ownership transfer in a more transparent and efficient way, deepening social, technical and economic understanding. Further, there is potential to increase accountability and help fight against corruption.

Outlook
While blockchain technology offers potential for increased transparency, efficiency and automation for business processes, developing a blockchain business case is no small task. It requires thorough evaluation of implementation costs and risks versus cost-saving and monetary benefits from new blockchain-based products and services. In contrast to other technologies, blockchain does not appear to be a purely technical innovation but socio-technical: it requires the design of technical components of a system but also of processes and relationships by those implementing it. This is why a holistic, interdisciplinary approach, involving computer scientists, entrepreneurs, regulators, economists and academics, is essential – and, as is often the case for innovation, blockchain's benefits can be found in the human-technology sweet spot. />

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